



Clean Version of Claims

16. A method of determining blood pressure, for use with an apparatus that includes: (i) a limb orientation sensing unit, (ii) a blood pressure measurement mechanism, and (iii) a timing mechanism, wherein the timing mechanism is coupled to the blood pressure measurement mechanism and the limb orientation sensing unit; the method comprising the steps of:

- (a) applying the blood pressure measurement mechanism and the limb orientation sensing unit to an individual's limb to detect a presence of blood pressure in the limb, to detect at least one of an actual orientation and an actual position of the limb, and to automatically trigger the timing mechanism; and
- (b) the limb orientation sensing unit configured to sense at least one of a correct orientation and a correct position of the limb, and, in response thereto, delivering an electrical signal to the blood pressure measurement mechanism; and
- (c) the blood pressure measurement mechanism automatically measuring blood pressure in response to the electrical signal; or,
- (d) upon the timing mechanism measuring a passage of a predetermined amount of time, the timing mechanism automatically causing the blood pressure measurement mechanism to measure blood pressure.

17. The method of claim 16 wherein the apparatus includes a display mechanism coupled to the limb orientation sensing unit, the method further comprising the step of displaying a visual indication that guides the individual to place the limb in at least one of the correct orientation and the correct position.

18. The method of claim 17 wherein the display mechanism is also coupled to the blood pressure measurement mechanism, the method further comprising the step of displaying at least one of blood pressure and pulse.

19. The method of claim 17 further including the steps of:

the limb orientation sensing unit monitoring displacement of the limb during the step of blood pressure measurement, and

displaying an error message if the limb is displaced during the step of measuring blood pressure.

20. The method of claim 17, further comprising the step of correcting the measured blood pressure in response to at least one of an actual orientation and an actual position of the individual's limb, wherein, respectively, the actual orientation is not the correct orientation and/or the actual position is not the correct position.

21. The method of claim 16, further comprising the steps of providing a motion sensor, sensing motion of the individual's limb while the blood pressure is being measured, and correcting the measured blood pressure in response to the sensed motion.

22. The method of claim 17, wherein the visual indication is indicative of whether at least one of the sensed limb orientation and the sensed limb position is in a correct angular range of the limb from which a blood pressure measurement is taken, such that the visual indication causes the user, by interaction, to adopt an orientation and/or a position within the correct angular range for measurement.

23. An apparatus including:

- (a) a limb orientation sensing unit;
- (b) a blood pressure measurement mechanism; and
- (c) a time measurement mechanism;

wherein the time measurement mechanism is coupled to the blood pressure measurement mechanism and the limb orientation sensing unit;

wherein, upon the apparatus being applied to an individual's limb, the blood pressure measurement mechanism detects blood pressure prevailing in the limb, the limb

orientation sensing unit senses at least one of a position and an orientation of the limb, and the timing mechanism is automatically triggered;

wherein the limb orientation sensing unit is configured to sense at least one of a correct orientation and a correct position of the limb, and, in response thereto, deliver an electrical signal to the blood pressure measurement mechanism;

wherein the blood pressure measurement mechanism automatically measures blood pressure in response to the electrical signal; and

wherein, upon the timing mechanism measuring a passage of a predetermined amount of time, automatically causing the blood pressure measurement mechanism to measure blood pressure.

24. The apparatus of claim 23 further comprising a display mechanism, coupled to the limb orientation sensing unit, for displaying a visual indication that guides the individual to place the limb in at least one of the correct orientation and the correct position.

25. The apparatus of claim 24 wherein the display mechanism is also coupled to the blood pressure measurement mechanism, and wherein the display mechanism displays at least one of blood pressure and pulse.

26. The apparatus of claim 24 wherein the limb orientation sensing unit monitors displacement of the limb during the step of blood pressure measurement, and the display mechanism displays an error message if the limb is displaced during a blood pressure measurement.

27. The apparatus of claim 24, wherein the blood pressure measurement mechanism corrects measured blood pressure in response to at least one of an actual orientation and an actual position of the individual's limb as measured by the limb orientation sensing unit, wherein, respectively, the actual orientation is not the correct orientation, and/or the actual position is not the correct position.

28. The apparatus of claim 23, further including a motion sensor for detecting motion of the individual's limb while blood pressure is being measured by the blood pressure measurement mechanism, and for correcting the measured blood pressure in response to the sensed motion.

29. The apparatus of claim 24, wherein the visual indication is indicative of whether at least one of the sensed limb position and the sensed limb orientation is in a correct angular range of the limb from which a blood pressure measurement is taken, such that the visual indication causes the user, by interaction, to adopt at least one of a position and an orientation within the correct angular range.

30. The apparatus of claim 24, further comprising a data storage device for storing reference data.

31. The apparatus of claim 24, wherein the blood pressure measurement mechanism is positioned within a unit constructed to fit an individual's wrist.

32. The apparatus of claim 24, wherein the display mechanism provides an indication in the form of two arrows pointing in opposite directions, and one of the arrows is illuminated to indicate a direction by which at least one of a limb position correction may be performed if the limb is not in the correct position, and a limb orientation correction may be performed if the limb is not in the correct orientation.

33. The apparatus of claim 32, further comprising a measurement value storage device for determining validity of a blood pressure measurement taken by the blood pressure measurement mechanism, wherein the display mechanism is further equipped with an error readout display for indicating any of a plurality of improper measurement conditions, including at least one of an incorrect measurement position, an incorrect measurement orientation, an incorrect measurement inclination angle, and limb movement taking place during the blood pressure measurement.

34. The apparatus of claim 33 wherein the error readout of the display mechanism is activated during the blood pressure measurement.

35. The apparatus of claim 34 wherein the error readout of the display is activated after the blood pressure measurement.

36. The apparatus of claim 23 further comprising an error flag mechanism, wherein the display mechanism is not continuously activated during blood pressure measurement;

wherein the limb orientation sensing unit is continuously activated during blood pressure measurement, and

wherein the limb orientation sensing unit is used to activate the error flag mechanism if the limb orientation sensing unit detects that the limb is not in at least one of the correct position and the correct orientation at any time during blood pressure measurement.

37. The apparatus of claim 23 wherein the display mechanism is also adapted to display at least one of blood pressure measurement values and a pulse rate.

38. The apparatus of claim 24 wherein the limb orientation sensing unit senses both limb position and limb orientation.

39. The apparatus of claim 38 wherein the limb is an arm, and the correct orientation is such that the arm is substantially adjacent and proximate to the chest/upper portion of the body.25.

40. The apparatus of claim 39 wherein the display mechanism is arranged such that a blood pressure measurement value and/or a pulse is substantially readable only if the arm is in the correct orientation.



Marked Up Version of Claims

— of providing a pressure sensor, providing an orientation sensing unit, applying —
— said pressure sensor and said orientation sensing unit to an individual's limb to —
— detect the blood pressure prevailing in said limb and the orientation of said limb, —
— and wherein the orientation sensing unit delivers an electrical signal responsive to —
— the detected orientation of the limb, and further providing an evaluating unit for —
— automatically evaluating the blood pressure in response to said electrical signal. —

— 2. — (Amended) The method as claimed in claim 1, further comprising the step —
— of correcting the detected blood pressure in response to the detected orientation of —
— the individual's limb. —

— 3. — (Amended) The method as claimed in claim 1, further comprising the —
— steps of providing an inclination sensor for detecting the angular position of the —
— individual's limb, and correcting the detected blood pressure in response to said —
— angular position. —

— 4. — (Amended) The method as claimed in claim 1 or 2, further comprising the —
— steps of providing a motion sensor, detecting the motion of the individual's limb —
— while the pressure is being sensed, and correcting the detected blood pressure in —
— response to said motion. —

5. (Amended) The method as claimed in claim 1, further comprising the steps of providing a display device with a feedback indicative of whether the measurement position is in a correct angular range of the limb from which the measurement is taken, and/or the feedback causes the user, by interaction, to adopt the correct position for measurement.

6. (Amended) A blood pressure measuring device comprising a pressure sensor for generating a pressure signal, an application unit for applying the pressure sensor to an individual's limb, an evaluating unit for evaluating the pressure signal, an orientation sensing unit provided in the interior of a housing of the blood pressure measuring device for detecting the limb's orientation, and delivering an electrical signal, responsive to the limb's orientation, to the evaluating unit for automatically evaluating the blood pressure.

7. (Amended) The blood pressure measuring device as claimed in claim 6, wherein the evaluating unit comprises a correcting unit for correcting the pressure signal in response to the detected orientation.

8. (Amended) The blood pressure measuring device as claimed in claim 6, wherein the orientation sensing unit comprises an inclination sensor which detects the inclination of the individual's limb to which the pressure sensor is applied.

9. (Amended) The blood pressure measuring device as claimed in claim 6, wherein a motion sensing unit for detecting a motion of the individual's limb, is provided, and said evaluating unit comprises a correcting unit for correcting the pressure signal in response to the detected motion, in particular the speed or acceleration.

10. (Amended) The blood pressure measuring device as claimed in claim 9, wherein said motion sensing unit comprises an inclination sensor and a differentiating unit connected thereto.

11. (Amended) The blood pressure measuring device as claimed in claim 8, wherein the orientation sensing unit and the pressure sensor are connected to the evaluating unit via a timing unit.

12. (Amended) The blood pressure measuring device as claimed in claim 9, wherein a storage unit is provided for the storage of reference data.

13. (Amended) The blood pressure measuring device as claimed in claim 10, wherein the application unit for applying the pressure sensor is constructed to fit an individual's wrist.

14. (Amended) The blood pressure measuring device as claimed in claim 11,
—further comprising a display device providing a readout, in the form of two arrows
—pointing in opposite directions, of a correct and/or incorrect angular range or a
—movement of the blood pressure measuring device and/or a prompt for correcting
—the measurement position.

15. (Amended) The blood pressure measuring device as claimed in claim 12,
—further comprising a measurement value storage or a device for determining the
validity of the measurement results, enabling a readout of improper measurement
conditions to be provided in response to the measurement position, the
measurement inclination angle, or any movement taking place during the
measurement cycle.

16. A method of determining blood pressure, for use with an apparatus that includes: (i) a limb orientation sensing unit, (ii) a blood pressure measurement mechanism, and (iii) a timing mechanism, wherein the timing mechanism is coupled to the blood pressure measurement mechanism and the limb orientation sensing unit; the method comprising the steps of:

- (a) applying the blood pressure measurement mechanism and the limb orientation sensing unit to an individual's limb to detect a presence of blood pressure in the limb, to detect at least one of an actual orientation and an actual position of the limb, and to automatically trigger the timing mechanism; and
- (b) the limb orientation sensing unit configured to sense at least one of a correct orientation and a correct position of the limb, and, in response thereto, delivering an electrical signal to the blood pressure measurement mechanism; and
- (c) the blood pressure measurement mechanism automatically measuring blood pressure in response to the electrical signal; or,
- (d) upon the timing mechanism measuring a passage of a predetermined amount of time, the timing mechanism automatically causing the blood pressure measurement mechanism to measure blood pressure.

17. The method of claim 16 wherein the apparatus includes a display mechanism coupled to the limb orientation sensing unit, the method further comprising the step of displaying a visual indication that guides the individual to place the limb in at least one of the correct orientation and the correct position.

18. The method of claim 17 wherein the display mechanism is also coupled to the blood pressure measurement mechanism, the method further comprising the step of displaying at least one of blood pressure and pulse.

19. The method of claim 17 further including the steps of:

the limb orientation sensing unit monitoring displacement of the limb during the step of blood pressure measurement, and

displaying an error message if the limb is displaced during the step of measuring blood pressure.

20. The method of claim 17, further comprising the step of correcting the measured blood pressure in response to at least one of an actual orientation and an actual position of the individual's limb, wherein, respectively, the actual orientation is not the correct orientation and/or the actual position is not the correct position.

21. The method of claim 16, further comprising the steps of providing a motion sensor, sensing motion of the individual's limb while the blood pressure is being measured, and correcting the measured blood pressure in response to the sensed motion.

22. The method of claim 17, wherein the visual indication is indicative of whether at least one of the sensed limb orientation and the sensed limb position is in a correct angular range of the limb from which a blood pressure measurement is taken, such that the visual indication causes the user, by interaction, to adopt an orientation and/or a position within the correct angular range for measurement.

23. An apparatus including:

- (a) a limb orientation sensing unit;
- (b) a blood pressure measurement mechanism; and
- (c) a time measurement mechanism;

wherein the time measurement mechanism is coupled to the blood pressure measurement mechanism and the limb orientation sensing unit;

wherein, upon the apparatus being applied to an individual's limb, the blood pressure measurement mechanism detects blood pressure prevailing in the limb, the limb

orientation sensing unit senses at least one of a position and an orientation of the limb, and the timing mechanism is automatically triggered;

wherein the limb orientation sensing unit is configured to sense at least one of a correct orientation and a correct position of the limb, and, in response thereto, deliver an electrical signal to the blood pressure measurement mechanism;

wherein the blood pressure measurement mechanism automatically measures blood pressure in response to the electrical signal; and

wherein, upon the timing mechanism measuring a passage of a predetermined amount of time, automatically causing the blood pressure measurement mechanism to measure blood pressure.

24. The apparatus of claim 23 further comprising a display mechanism, coupled to the limb orientation sensing unit, for displaying a visual indication that guides the individual to place the limb in at least one of the correct orientation and the correct position.

25. The apparatus of claim 24 wherein the display mechanism is also coupled to the blood pressure measurement mechanism, and wherein the display mechanism displays at least one of blood pressure and pulse.

26. The apparatus of claim 24 wherein the limb orientation sensing unit monitors displacement of the limb during the step of blood pressure measurement, and the display mechanism displays an error message if the limb is displaced during a blood pressure measurement.

27. The apparatus of claim 24, wherein the blood pressure measurement mechanism corrects measured blood pressure in response to at least one of an actual orientation and an actual position of the individual's limb as measured by the limb orientation sensing unit, wherein, respectively, the actual orientation is not the correct orientation, and/or the actual position is not the correct position.

28. The apparatus of claim 23, further including a motion sensor for detecting motion of the individual's limb while blood pressure is being measured by the blood pressure measurement mechanism, and for correcting the measured blood pressure in response to the sensed motion.

29. The apparatus of claim 24, wherein the visual indication is indicative of whether at least one of the sensed limb position and the sensed limb orientation is in a correct angular range of the limb from which a blood pressure measurement is taken, such that the visual indication causes the user, by interaction, to adopt at least one of a position and an orientation within the correct angular range.

30. The apparatus of claim 24, further comprising a data storage device for storing reference data.

31. The apparatus of claim 24, wherein the blood pressure measurement mechanism is positioned within a unit constructed to fit an individual's wrist.

32. The apparatus of claim 24, wherein the display mechanism provides an indication in the form of two arrows pointing in opposite directions, and one of the arrows is illuminated to indicate a direction by which at least one of a limb position correction may be performed if the limb is not in the correct position, and a limb orientation correction may be performed if the limb is not in the correct orientation.

33. The apparatus of claim 32, further comprising a measurement value storage device for determining validity of a blood pressure measurement taken by the blood pressure measurement mechanism, wherein the display mechanism is further equipped with an error readout display for indicating any of a plurality of improper measurement conditions, including at least one of an incorrect measurement position, an incorrect measurement orientation, an incorrect measurement inclination angle, and limb movement taking place during the blood pressure measurement.

34. The apparatus of claim 33 wherein the error readout of the display mechanism is activated during the blood pressure measurement.

35. The apparatus of claim 34 wherein the error readout of the display is activated after the blood pressure measurement.

36. The apparatus of claim 23 further comprising an error flag mechanism, wherein the display mechanism is not continuously activated during blood pressure measurement;

wherein the limb orientation sensing unit is continuously activated during blood pressure measurement, and

wherein the limb orientation sensing unit is used to activate the error flag mechanism if the limb orientation sensing unit detects that the limb is not in at least one of the correct position and the correct orientation at any time during blood pressure measurement.

37. The apparatus of claim 23 wherein the display mechanism is also adapted to display at least one of blood pressure measurement values and a pulse rate.

38. The apparatus of claim 24 wherein the limb orientation sensing unit senses both limb position and limb orientation.

39. The apparatus of claim 38 wherein the limb is an arm, and the correct orientation is such that the arm is substantially adjacent and proximate to the chest/upper portion of the body.25.

40. The apparatus of claim 39 wherein the display mechanism is arranged such that a blood pressure measurement value and/or a pulse is substantially readable only if the arm is in the correct orientation.